

PATENT  
Atty Docket No. 1006-018/MMM

In the claims:

1. (Original) In a multimedia computer amplified speaker system having a speaker driver for transducing into sound an audio electrical signal that has an amplitude, the improvement comprising:

a dynamic bass equalization circuit with a second or higher order active filter having a dynamically adjusted gain and frequency response that vary with the amplitude of the audio electrical signal.

2. (Original) The speaker system of claim 1 in which the active filter includes a Sallen-Key high pass filter.

3. (Original) The speaker system of claim 1 in which the dynamically adjusted gain and frequency response are provided by a parallel pair of reversed diodes.

4. (Original) The speaker system of claim 1 in which the active filter includes an amplifier with a negative feedback path that includes a parallel pair of opposed diodes.

5. (Original) The speaker system of claim 4 in which the amplifier includes an output and the negative feedback path includes a resistor connected in series with the parallel pair of opposed diodes and the amplifier output.

6. (Original) The speaker system of claim 4 in which the amplifier includes a positive feedback path having a voltage divider that voltage divides a feedback voltage.

7. (Original) The speaker system of claim 6 in which the amplifier includes an output and the negative feedback path includes a resistor connected in series with the parallel pair of opposed diodes and the amplifier output.

8. (Original) The speaker system of claim 1 in which the active filter includes an amplifier with a positive feedback path having a voltage divider that voltage divides a feedback voltage.

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9. (Original) The speaker system of claim 1 in which the dynamic bass equalization circuit provides a bass equalized audio signal that is delivered to a sub-woofer speaker driver.

10. (Original) The speaker system of claim 1 in which the dynamic bass equalization circuit provides a bass equalized audio signal that is delivered to a full-range speaker driver.

11. (Original) In a multimedia computer amplified speaker system having a speaker driver for transducing into sound an audio electrical signal that has an amplitude, the improvement comprising:

a dynamic bass equalization circuit with a second or higher order Sallen-Key high pass filter having a dynamically adjusted gain and frequency response that vary with the amplitude of the audio electrical signal.

12. (Original) The speaker system of claim 11 in which the dynamically adjusted gain and frequency response are provided by a parallel pair of reversed diodes.

13. (Original) The speaker system of claim 11 in which the active filter includes an amplifier with a negative feedback path that includes a parallel pair of opposed diodes.

14. (Original) The speaker system of claim 13 in which the amplifier includes an output and the negative feedback path includes a resistor connected in series with the parallel pair of opposed diodes and the amplifier output.

15. (Original) The speaker system of claim 13 in which the amplifier includes a positive feedback path having a voltage divider that voltage divides a feedback voltage.

16. (Original) The speaker system of claim 15 in which the amplifier includes an output and the negative feedback path includes a resistor connected in series with the parallel pair of opposed diodes and the amplifier output.

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17. (Original) The speaker system of claim 11 in which the active filter includes an amplifier with a positive feedback path having a voltage divider that voltage divides a feedback voltage.

18. (Original) The speaker system of claim 11 in which the dynamic bass equalization circuit provides a bass equalized audio signal that is delivered to a sub-woofer speaker driver.

19. (Original) The speaker system of claim 11 in which the dynamic bass equalization circuit provides a bass equalized audio signal that is delivered to a full-range speaker driver.

20. (Original) In a multimedia computer amplified speaker system having a speaker driver for transducing into sound an audio electrical signal that has an amplitude, the improvement comprising:

a dynamic bass equalization circuit with an active filter having a dynamically adjusted gain and frequency response that vary with the amplitude of the audio electrical signal.

21. (Original) The speaker system of claim 20 in which the dynamically adjusted gain and frequency response are provided by a parallel pair of reversed diodes.

22. (Original) The speaker system of claim 20 in which the active filter includes an amplifier with a negative feedback path that includes a parallel pair of opposed diodes.

23. (Original) The speaker system of claim 22 in which the amplifier includes an output and the negative feedback path includes a resistor connected in series with the parallel pair of opposed diodes and the amplifier output.

24. (Original) The speaker system of claim 22 in which the amplifier includes a positive feedback path having a voltage divider that voltage divides a feedback voltage.

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25. (Original) The speaker system of claim 24 in which the amplifier includes an output and the negative feedback path includes a resistor connected in series with the parallel pair of opposed diodes and the amplifier output.

26. (Original) The speaker system of claim 20 in which the active filter includes an amplifier with a positive feedback path having a voltage divider that voltage divides a feedback voltage.

27. (Original) The speaker system of claim 20 in which the dynamic bass equalization circuit provides a bass equalized audio signal that is delivered to a sub-woofer speaker driver.

28. (Original) The speaker system of claim 20 in which the dynamic bass equalization circuit provides a bass equalized audio signal that is delivered to a full-range speaker driver.

29. (Original) In a multimedia computer amplified speaker system having a speaker driver for transducing into sound an audio electrical signal that has an amplitude, a method of operating a bass equalization circuit having a gain and a frequency response, comprising:

dynamically adjusting the gain of the bass equalization circuit according to the amplitude of the audio electrical signal to provide an amplitude dependent gain; and

dynamically adjusting the frequency response of the bass equalization circuit according to the amplitude dependent gain.

30. (Original) The method of claim 31 in which dynamically adjusting the frequency response of the bass equalization circuit includes passing a negative feedback signal through a parallel pair of opposed diodes.